CleanHarbors
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May 1, 2008

Mr. Robert Reuter
Department of Ecology
Northwest Regional Office
3190 160th Ave SE
Bellevue, WA 98008-5452

RE: Alaskan Copper Works
Chrome Slag Waste Generation and Treatment by Generator Update

Mr. Reuter,

On behalf of Alaskan Copper Works, Clean Harbors Environmental Services, Inc (CHES) is providing this update on the status of a recent treatment study and pilot test of chrome contaminated slag waste generated by Alaskan Copper Works.

Background

Alaskan Copper Works is a pipe fabricator located at 3200 S 6th Avenue in Seattle Washington. As a component in their fabrication processing iron and stainless steel plates are cut to form using a high temperature torch commonly referred to as a (plasma cutting table). Slag from the cutting operation drops into a collection tray.

Historical sampling has revealed slag waste to contain TCLP chrome at or above the maximum concentrations listed under 40CFR Part 261.24 and therefore characterized as an EPA regulated waste (D007).

This waste is removed from the cutting table collection tray several times a year using a vac truck and directly transferred into 55 gallon containers. These containers are then marked and labeled with accumulation dates then dewatered over the course of a 90 period before being manifested off-site to an EPA permitted TSD.

Generation volumes run between 40,000 pounds to 80,000 pounds annually depending on production rates.

In the 2007 pollution prevention plan update submitted to the Department of Ecology (Ecology) Alaskan Copper indicated that a treatability study and pilot test would be conducted on this waste stream under the standards in 2002 Technical Information Memorandum (TIM) #96-412 "Treatment by Generator".

CHES has recently completed treatability studies and pilot testing on a run of waste generated earlier this year. The results of the pilot testing have revealed successful treatment of all contaminates of concern to below regulatory levels.

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Treatment Concept

Treatment offered by CHES and applied for the treatment of Alaskan Copper's waste slag involves a stabilization process known as mineralization. Mineralization is a method by which TCLP heavy metal contaminated media can be rendered into a non RCRA state by adding common chemistries directly into the media to create naturally occurring less toxic minerals.

Mineralization can be conducted in a variety of simple and cost effective ways. The results are instantaneous and verifiably irreversible through a chemical change called "Isomorphic Substitution".

This isomorphic property of the resulting mineral is the ability for similar ions or molecules having similar size and charge to interchange within the crystalline matrix without causing a change in the crystal structure or physical properties of the mineral. Although this property to interchange ions sometimes occurs naturally, isomorphism can be forced to occur given certain controlled environmental influences.

The isomorphic property of the mineral is irreversible. Once the mineral is formed it can only be broken down under extreme conditions. Any number of highly toxic ions can be placed permanently within the mineral structure making them nearly insoluble and significantly more resistant to leaching then typical stabilization techniques.

Although the exact formulation of the reagents applied in the chrome contaminated waste stream is proprietary in nature, CHES would be willing to provide addition technical data to Ecology under a confidentially agreement.

Pilot Project Information

In Early January 2008 CHES provided oversight during the removal of approximately 15,000 pounds of slag waste. Prior to removal the slag waste was partially dewatered to the limits of the collection tray wastewater holding tank. Slag waste removed using a vac truck and transferred to a containment area where the contents were emptied into 55 gallon container places in secondary containment. Additional dewater was conducted with separated waste water was drawn off and added to the Alaskan Copper Works existing on-site wastewater treatment process. CHES then transferred the slag into a lined drop box with a water decantering filter where the slag and remaining water was subsequently removed.

In March 2008, CHES applied treatment reagent in directly to the slag waste which was then circulated through a vac truck to provide 100% contact and reloaded into the drop box. A composite sample was then collected by pulling six separate grab samples mixed uniformly in equal proportions. This was then sent to an independent state certified laboratory for testing. Testing parameters were for LC50 and RCRA 8 metals (TCLP). These results were compared to pretreatment sampling of the waste slag prior to the application of reagent.

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The results of the pilot project are found in Appendix A

CHES has determined that the resulting waste stream no longer exhibits the characteristics of RCRA hazardous waste or state dangerous waste as defined under 40CFR Subpart B and C as well as WAC 173-303-070.

All elements of the pilot project were conducted under a written health and safety plan with all equipment including the vac truck decontaminated with resulting flushate sent to the wastewater treatment system.

Non-Regulated Waste Slag Disposition

CHES will assist Alaskan Copper Works in developing a simplified methodology for dewatering and treatment that will reduce material handling.

CHES will continue to conduct verification testing for each batch of waste slag generated during 2008. In every future situation, Alaskan Copper Works will pull one composite sample for RCRA 8 metals prior to removal of treated slag of site.

Alaskan Copper Works intends to recycle all treated solid waste slag to local cement kilns as a for raw material substitute under the Washington Sate sandblast grit recycling provisions.

Alaskan Copper Works will provide to any additional information deemed appropriate by Ecology prior to the off site shipment of this first treated volume of solid waste.

Recordkeeping and Documentation

Alaskan Copper Works will retain all confirmation testing results and supporting documentation for all generated slag for a period of three years and will provide updated information in all subsequent Pollution Prevention annual reports

On behalf of Alaskan copper Works, CHES is pleased to have received positive feed back from Ecology staff and is extremely appreciative of the technical support, comments and suggestions provided by Ecology during the course of this endeavor.

Please feel free to contact Mr. Jason Sullivan of CHES at (b) (6) should you have any questions concerning this matter.

Respectfully,

Matthew Dunn
Field Project Manager
Clean Harbors Environmental Services, Inc.